



Published in final edited form as:

*Vaccine*. 2014 May 23; 32(25): 2939. doi:10.1016/j.vaccine.2014.01.086.

## Hepatitis A vaccination for post-exposure prophylaxis in persons aged 40 years and older

**Noele P. Nelson,**

Division of Viral Hepatitis, Vaccine Research and Policy Team, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, GA, United States

**Trudy V. Murphy, and**

Division of Viral Hepatitis, Vaccine Research and Policy Team, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, GA, United States

**Brian J. McMahon\***

Liver Disease and Hepatitis Program, Alaska Native Medical Center, Alaska Native Tribal Health Consortium, Anchorage, AK, United States

The Centers for Disease Control and Prevention collaborated with state public health officials and the Food and Drug Administration to control a multistate outbreak of hepatitis A virus (HAV) in the United States during May–July 2013 (<http://www.cdc.gov/hepatitis/Outbreaks/2013/A1b-03-31/index.html>). Pomegranate seeds from Turkey were determined to be the most likely vehicle. As of August 1, 158 outbreak related cases were confirmed. The age range of cases was 1–84 years. Older adults are more likely to have severe disease. Importantly, 108 (68% of cases) were 40 years of age and older. All hospitalizations, 69 (44% of cases), were in persons older than 18 years of age, and 72% of hospitalized cases were older than 40 years of age. This is the largest hepatitis A outbreak since 2003 when greater than 500 cases in Pennsylvania were associated with contaminated green onions [1].

Based on the results of a study comparing the efficacy of hepatitis A vaccine and immunoglobulin G (IG) in persons 2–40 years of age [2], the Advisory Committee on Immunization Practices recommends hepatitis A vaccine for post-exposure prophylaxis (PEP) of healthy persons aged 12 months–40 years [3]. Administration of vaccine or IG is recommended within two weeks of exposure since efficacy beyond two weeks is not known. For persons aged greater than 40 years, IG is preferred; vaccine can be used if IG cannot be obtained. During the recent multi-state hepatitis A outbreak, some states opted for hepatitis A vaccine instead of IG for adults aged greater than 40 years. Hepatitis A can be more severe in older adults, and vaccine response might be less robust. However, limited data exist on the immunogenicity and efficacy of hepatitis A vaccine among older adults.

\*Corresponding author. [nnelson@cdc.gov](mailto:nnelson@cdc.gov) (N.P. Nelson), [tkm4@cdc.gov](mailto:tkm4@cdc.gov), (T.V. Murphy), [bmcMahon@anthc.org](mailto:bmcMahon@anthc.org), [bdm9@cdc.gov](mailto:bdm9@cdc.gov) (B.J. McMahon)..

In a previous hepatitis A vaccine randomized clinical trial, published results included people 18 years of age or older, but were not delineated by age groups [4]. Seroconversion to anti-HAV positive, defined as  $\geq 20$  mIU anti-HAV, served as a surrogate of protection. Unpublished data from this study indicated that at 15 and 30 days, 74% ( $n = 125$ ) and 90% ( $n = 128$ ) of adults ages 40–49 years seroconverted (HAV-specific IgG) after a single dose of vaccine; 54% ( $n = 37$ ) and 81% ( $n = 42$ ) of adults ages 50–59 years seroconverted; and 30% ( $n = 10$ ) and 50% ( $n = 10$ ) of adults ages  $\geq 60$  years seroconverted. The geometric mean titers (expressed in mIU/ml) at 15 and 30 days were 26.09 ( $n = 125$ ) and 87.97 ( $n = 121$ ) for adults ages 40–49 years; 12.80 ( $n = 37$ ) and 39.70 ( $n = 41$ ) for adults ages 50–59 years; and 1.62 ( $n = 10$ ) and 4.49 ( $n = 9$ ) for adults ages  $\geq 60$  years, respectively. The sample sizes were small for age groups 50 and older, and the data included antibody titers from two methods of vaccine administration (needle and jet-injector) [4]. However, 15 day titers for adults 40–49 years of age suggest that hepatitis A vaccine is likely to provide rapid acquisition of protection. Among adults ages 50–59 years, data suggest substantial protection by 30 days post-vaccination. Additional U.S. studies are needed to determine optimal hepatitis A vaccine use for post-exposure prophylaxis among adults older than 40 years of age, but until such studies are available, the administration of IG to this age group is preferred [3].

## Abbreviations

<b>HAV</b>	hepatitis A virus
<b>n</b>	sample size (denominator)
<b>IG</b>	immunoglobulin G
<b>PEP</b>	post-exposure prophylaxis
<b>mIU/ml</b>	milli-international units per milliliter

## References

- [1]. Wheeler C, Vogt TM, Armstrong GL, Vaughan G, Weltman A, Nainan OV, et al. An outbreak of hepatitis A associated with green onions. *N Engl J Med.* 2005; 353(September (9)):890–7. PubMed PMID: 16135833. [PubMed: 16135833]
- [2]. Victor JC, Monto AS, Surdina TY, Suleimenova SZ, Vaughan G, Nainan OV, et al. Hepatitis A vaccine versus immune globulin for postexposure prophylaxis. *N Engl J Med.* 2007; 357(October (17)):1685–94. [Epub 2007 October 18]. PubMed PMID: 17947390. [PubMed: 17947390]
- [3]. Advisory Committee on Immunization Practices (ACIP); Centers for Disease Control and Prevention (CDC). Update: prevention of hepatitis A after exposure to hepatitis A virus and in international travelers. Updated recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Morb Mortal Wkly Rep.* 2007; 56(October (41)):1080–4. PubMed PMID: 17947967. [PubMed: 17947967]
- [4]. Williams J, Fox-Leyva L, Christensen C, Fisher D, Schlichting E, Snowball M, et al. Hepatitis A vaccine administration: comparison between jet-injector and needle injection. *Vaccine.* 2000; 18(March (18)):1939–43. PubMed PMID: 10699344. [PubMed: 10699344]